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CRIN E09- Technology
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Part I: Lesson Plan

Lesson Title: Rounding to the Nearest Thousands

Context/Grade Level: This lesson is designed for a 3rd grade class at Stonehouse Elementary School. The class consists of 18 students, six of which have learning disabilities.

Objective(s): Students will round four digit whole numbers to the nearest thousand.

SOL Strand: Number and Number Sense
Focus: Place Value and Fractions

SOL: 3.1 (2009) The student will
b) round whole numbers, 9,999 or less, to the nearest ten, hundred, and thousand

Materials/Resources:

- Doc Camera and pencil/paper
- Laptop and internet and interactive notepad
- String and bead for number line manipulative
- Math journals

Approximate time required: 1 hr

Content and Instructional Strategies:

1. Review rounding to the nearest ten and hundred that the students learned about in the previous lesson. **Write 345 on paper under document camera (Attend to a Demonstration- Plan B: whiteboard and dry erase markers)** and round to the nearest ten using number line method discussed in previous lesson. The number line method involves first determining the upper and lower boundaries (closet multiples of ten) to which the number could be rounded. When rounding 345 to the nearest, the boundaries would be 340 and 350. Then write a number line with 340 and 350 as end points and 345 as the center. Plot 345 on the number line and show that because the number falls in the center it is rounded up to 350. Also explain that due to the fact that the 5 in the ones place is greater than or equal to 5, then the number in the tens place is rounded up to 350. Ask one student to come up and round 345 to nearest hundred using same method.
2. **Write 657 on paper under document camera (Attend to a demonstration- Plan B: whiteboard and dry erase markers)** and round to nearest ten using circle and underline method discussed in previous lesson. Then ask one student to come up and round 657 to the nearest hundred using same method.
3. Let students know that they can also round to the nearest thousand. Write 1,672 **on paper under document camera (Plan B: whiteboard and dry erase markers)** and explain that rounding to nearest thousand is very similar to rounding to the nearest ten and hundred. Model rounding to the nearest thousand using the number line method.

Draw number line with 1,000 and 2,000 as endpoints and 1,500 as the center mark on paper beneath doc camera. Place the number 1,672 on the number line to the right of the center mark (1,500). Explain that since the number 1,672 is to the right of 1,500 the number is rounded up to 2,000.

4. **Using manipulative consisting of string, a bead, and a marker indicating the center of the line (Attend to a demonstration)** ask two students to come up to help with the demonstration. Explain that the string represents the number line and the bead represents the number that must be rounded. Hold one end of the string, have one student hold the other end, and have the other student move the bead to represent where the number is on the number line. For example, to model 1,340 explain that the two endpoints are 1,000 and 2,000 and that the center marker represents 1,500. Ask one student to move the bead to the location of 1,340 on the number line. Ask class to describe whether 1,340 is rounded down to 1,000 or rounded up to 2,000 based on the position the number line. Students' responses should explain how since the number falls to the left of the center mark (1,500) it is rounded down to the nearest thousand (1,000).
5. **Model rounding to nearest thousand** using the circle and underline method from previous lesson **on paper under document camera (Attend to a demonstration- Plan B: whiteboard and dry erase markers)**. Round 1,672 to the nearest thousand. To use the circle and underline method, underline the digit in the thousands place and circle the digit to the right (the digit in the hundreds place). If the number to the right is less than five, the underlined number stays the same and the rest of the digits to the right of the underline digit are changed to zeros. If the number to the right is greater than or equal to five, then the underlined number increases by one and the digits to the right of the underlined digit are changed to zeros. For the example, 1,672 underline the 1 because it is in the thousands place and circle the 6 because it is in the place to the right of the underlined digit. Since "6" is greater than 5 you must round the underlined digit up. The answer will be 2,000.
6. Give **three practice problems with rounding to the nearest thousand** using both the circle and underline method and numberline method, asking students **to complete the problems with partners in their math journals (Do drill and practice).**
7. Review rounding to nearest ten and nearest hundred now using four digit numbers. **Model rounding** to the nearest ten and hundred using circle and underline method **under document camera (Attend to a demonstration- Plan B: whiteboard and dry erase markers)**. Then give two **practice problems**, one rounding to the nearest ten and the other rounding to the nearest hundred, which the students can work in pairs in their **math journals (Do drill and practice)** to complete.
8. Tell students that they will now use what they have learned about rounding to **play a rounding game online (Do drill and practice- Plan B: practice rounding in teams of two people with white boards and dry erase markers)**. Open website *(www.free-training-tutorial.com/rounding-games.html*) in browser and model Shark Rounding Game for students. The object of the game is to select the shark with the answer to each rounding question. If the correct shark is chosen then it will explode into small pieces. Have students take turn using the interactive pad with pen.
9. After playing the game, students will be given **three problems to complete independently in their math journals (Do drill and practice)**. They will round three numbers to the nearest thousand, hundred, and ten using the underline and circle method.

If students struggle with the underline and circle method, students can be given the number line manipulative to work with.

Evaluation/Assessment:

Formative assessment will take place as students come up to review rounding to the nearest ten and hundred. Additionally, students will be observed when using the number line manipulative.

At the conclusion of the lesson, the following questions will be written down for students to complete in their math journals. If students struggle they can use the number line method in addition to solidify the concept.

1. Round to the nearest thousand. Use underline and circle method.

   3,450

2. Round to the nearest hundred. Use underline and circle method.

   4,679

3. Round to the nearest ten. Use underline and circle method.

   5,989

Differentiation and Adaptations:

Students with learning disabilities can be given dry erase markers and wipe off boards to work with and given the opportunity to use the number line manipulative when completing problems. When it comes to assessment of rounding these students would benefit from numbers that are already underlined and circled. They would also benefit from being able to verbally explain how to round the numbers in place of drawing out the number line or circle/underline.

Part II: Activity Types Planning Guide

Targeted Virginia SOL (or relevant portion): 3.1 (2009) The student will
b) round whole numbers, 9,999 or less, to the nearest ten, hundred, and thousand

Grade Level: 3 **Content Area:** Math

Restate the standard in terms of a learning goal for the students:
1) Students will round numbers to the nearest thousand.

Student Activity	Possible Activity Type	Digital/Non-Digital Technology Options
Review rounding to nearest ten and hundred	Solve warm-up problem	Document camera and paper/pencil; White board and dry erase marker
Review rounding to nearest ten and hundred	Attend to a demonstration	Document camera and paper/pencil; white board and dry erase marker
Model rounding to nearest thousand	Attend to a demonstration	Document camera and paper/pencil; Whiteboard and dry erase marker
Model rounding to the nearest thousand with manipulative	Attend to a demonstration	String and bead number line manipulative; Virtual manipulative of number line online
Model rounding to nearest thousand using underline and circle method	Attend to a demonstration	Document camera and paper/pencil; Whiteboard and dry erase markers
Give problems for students to complete in pairs	Do Drill and Practice	Math journal and pencil; White boards and dry erase markers
Model rounding to nearest ten and hundred with four digit numbers	Attend a demonstration	Document camera and paper/pencil; Whiteboard and dry erase marker
Practice rounding to nearest, ten, hundred, thousand	Do Drill and Practice	Online computer game; White boards and dry erase markers; Math journals
Practice rounding to nearest ten, hundred, thousand	Do Drill and Practice	Worksheet; Math journals

Part III Reflection:

Technology integration in this lesson enhances student learning, but does not overpower the mathematics objectives that ultimately must be fulfilled. Through the use of the activity planning guide I carefully chose the technology that would advance student learning, yet still hold a strong foundation in the curriculum. Not a single technology device was chosen as a means to an end, in fact it was chosen because it was the best route to achieve understanding and engage students in learning. The main technologies used throughout the lesson include the document camera and projector. When first creating the lesson I thought that the whiteboard and dry erase marker might be the best option, but after looking at other options I chose to use the document camera and projector. In fact, my main reason for choosing the document camera was due to the fact that I would not have my backs to the students as often as would be the case if I wrote on the whiteboard. The document camera is placed so that I would have my back on the students at times, but I would be able to write quickly and turn to face the students much easier than if I were writing on the whiteboard. Additionally, my body would not cover up the writing using the document camera as it would if I were to use the whiteboard. Furthermore, the students would be better able to read the writing projected on the screen than writing on the white board. Therefore, the document camera and projector were chosen as the most adequate technology devices for the review and practice of rounding.

Another technology device that enhances, but will not overpower, the lesson was the online rounding game and interactive notepad. The students will be very engaged in the rounding game and will have a desire to apply their knowledge in order to win the game and explode the sharks. Thus, the technology will make learning exciting and enthralling and encourage students to understand the concept of rounding, while meeting an SOL standard and shooting sharks simultaneously.